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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,050	12/01/2003	Ying-Cheng Chuang	10111682	2953

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QUINTERO LAW OFFICE
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EXAMINER

FENTY, JESSE A

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/725,050

Applicant(s)

CHUANG ET AL.

Examiner

Jesse A. Fenty

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☒ Certified copies of the priority documents have been received in Application No. 10/436,800.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- a. The Cross-References to Related Applications section must be updated to include the patent number of the parent application. See MPEP § 201.11(III)(B):

Status of nonprovisional parent applications (whether it is patented or abandoned) should also be included. If a parent application has become a patent, the expression, "Patent No. __" should follow the filing date of the parent application.

Appropriate correction is required.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/436,800, filed on 05/13/03.

Drawings

3. The drawings objection mailed 03/22/05 is withdrawn based on Applicant's amendment to Fig. 2g in Response filed 06/27/05.

Claim Rejections - 35 USC § 112

4. The claims rejection under 35 U.S.C. 112, second paragraph is withdrawn based on Applicant's amendment to the claims filed 06/27/05.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Chan et al. (U.S. Patent No.6,656,796 B2).

In re claim 1, Chan (esp. Figs. 6 and 7) discloses a floating gate semiconductor device, comprising:

a conductive base (14a) having a first top portion and a first bottom portion, wherein an edge of the first top portion is a first tip;

a gate dielectric layer interposed between the semiconductor substrate and the conductive base so as to directly contact with the first bottom portion;

a conductive protruding layer protruding from the conductive base, and the conductive protruding layer has a flat top (at 21c and 21d), wherein the conductive protruding layer has a second top portion and a second bottom (on the left and right sides) portion, an edge of the second top portion is a second tip, the second bottom portion is connected to the first top portion, the conductive protruding layer has two concave sidewalls; and

wherein a multiple tip floating gate is composed of the conductive base and the conductive protruding layer.

In re claim 2, Chan discloses the device of claim 1, wherein the base is a polysilicon layer (column 5, lines 55-60).

In re claim 3, Chan discloses the device of claim 1, wherein the conductive protruding layer is a poly layer (column 5, lines 55-60).

In re claim 4, Chan (esp. Figs. 6 and 7) discloses a floating gate (14a) formed on the surface of a semiconductor substrate (10), with a gate dielectric layer (12a) formed between the floating gate and the semiconductor substrate, comprising:

a base poly layer (14a) having a first top portion and a first bottom portion, wherein an edge of the first top portion is a first tip, and the first bottom portion contacts to the gate dielectric layer; and

a protruding poly layer on the base poly layer, and the protruding poly layer has a flat top (at 21c and 21d), a second top portion and a second bottom portion (at left and right edges), an edge of the second top portion is a second tip, the second bottom portion contacts the first top portion, the protruding poly layer has two concave sidewalls, wherein a multiple tip floating gate is composed of the base poly layer and the protruding poly layer.

Response to Arguments

7. Applicant's arguments filed 06/27/05 have been fully considered but they are not persuasive.

At the outset, Examiner Fenty notes that the continued rejection of claims 1-4 over Chan et al. is warranted on Examiner's interpretation of the claims and on the interpretation of the Chan et al. reference. Every attempt is made to explain Examiner's interpretation of both in the above rejection and the following remarks. However, if Applicant's representative would like to discuss the interpretation over the phone or in person, applicant's representative is invited to call Examiner Fenty to help clear up any disputed issues.

Firstly, regarding the rejections of claims 1 and 4, Applicant argues that, "as shown in Fig. 6, Chan et al. fails to disclose that the conductive protruding portion has a flat top." Applicant further asserts that, "the conductive protruding portion has an arc-shaped top or a concave top. See Fig. 6, between tips 21a and 21b."

This is one example of a different interpretation of the reference. As stated in the Non-Final Office Action mailed 03/22/05 and in the present Final Rejection, the conductive protruding portion of Chan et al. having a flat top is interpreted to be the regions (21c) and (21d). Those regions protrude outwards from the conductive base, the lower portion of the electrode (14a).

More completely, the first tip are the tips (at 21a and 21b), the second tips are the regions where the flat top ends (at 21c and 21d). To help visualize Examiner's interpretation of Chan et al., draw a dotted line from the one flat portion (at 21c) to the other flat portion (at 21d). The portion of the base above the dotted line is the first top portion, the portion of the base below the dotted line is the first bottom portion.

Next, within the first bottom portion, the conductive protruding layer, said portion contains the second top portion having the second tips (21c and 21d) at the top of that portion and the second bottom portions adjacent the gate dielectric (12a).

Therefore, Applicant's second argument that "Chan et al. fails to disclose a conductive protruding portion having two concave sidewalls," is erroneous because, as just explained, the region between the second top portion and second bottom portion contains this concave shape as claimed.

Prior Art in Earlier Application

Per Applicant's request, Examiner has considered the prior cited by Examiner Guerrero in the Non-Final Office Action mailed 12/17/03 relating to parent application 10/436,800.

No Information Disclosure Statement was filed in the parent application nor in the instant application.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on 5/4-9 1st Fri. Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jesse A. Fenty
Examiner
Art Unit 2815


JEROME JACKSON
PRIMARY EXAMINER